

## ABSTRACT

1       An MWD method and apparatus for determining parameters of interest in a  
2       formation has a sensor assembly mounted on a slidable sleeve slidably coupled to a  
3       longitudinal member, such as a section of drill pipe. When the sensor assembly is held in  
4       a non-rotating position, for instance for obtaining the measurements, the longitudinal  
5       member is free to rotate and continue drilling the borehole, wherein downhole  
6       measurements can be obtained with substantially no sensor movement or vibration. This  
7       is particularly useful in making NMR measurements due to their susceptibility to errors  
8       due caused by tool vibration. In addition, the substantially non-rotating arrangement of  
9       sensors makes it possible to efficiently carry out VSPs, reverse VSPs and looking ahead  
10      of the drill bit. A clamping device is used, for instance, to hold the sensor assembly is  
11      held in the non-rotating position. The sensor assembly of the present invention can  
12      include any of a variety of sensors and/or transmitters for determining a plurality of  
13      parameters of interest including, for example, nuclear magnetic resonance measurements.